

Lessons Learned about Lessons Learned

Introduction:

Embedded in a number of Department policy documents is the expectation that positive and negative lessons learned from work activities, accidents, and operational events be identified, analyzed, communicated, and applied. The application of lessons learned is an essential element and requirement of Integrated Safety Management (ISM) Core Function 5, *Feedback and Continuous Improvement*. Many identified lessons learned are related to near misses or actual events where personnel were injured or killed, or the environment was adversely affected. Therefore, ensuring that we are effective in identifying and applying appropriately tailored lessons learned is vital to successful implementation of ISM. Detailed expectations and guidance for implementing lessons learned programs have been and are published in DOE Handbooks and in Standard 7501-99. This guidance, when appropriately applied, will facilitate an effective lessons-learned program. Although, requirements for lessons learned programs have never been codified into DOE Orders, DOE P450.4 mandates a strong feedback and improvement program that would include lessons learned.

OA-50, the Office of Environment, Safety, and Health Evaluations in the Office of Independent Oversight and Performance Assurance and its predecessor organization, have evaluated lessons learned programs and performance at more than a dozen DOE sites and facilities since 1995. The following discussion consists of observations and analysis of what we have seen. The opportunities for improvement discussed are focused on providing information to improve performance in meeting existing DOE expectations and guidance and are not intended establish new expectations or requirements. As expected, these evaluations have shown that site lessons learned programs vary significantly in formality, applied resources, and the rigor of implementation. However, these evaluations also reflect that most of the same program elements and DOE management expectations are being implemented well at many sites, and that the weaker program elements and performance were also common to most sites evaluated. These weaknesses in individual program elements share a common theme—formality and rigor. In most cases, it would appear that incremental enhancements to processes and performance could result in significant gains in meeting the management expectations outlined in the Lessons Learned Standard and Handbook.

Observations and Analysis by OA:

What's expected?

DOE Standard 7501-99, *The DOE Corporate Lessons Learned Program*, details DOE Corporate management expectations for lessons learned programs. The Standard delineates expectations not only for the processes and elements that comprises an effective lessons learned program, but also the responsibilities of line management to establish and implement policies and practices that ensure an effective program. DOE Handbook 7502-95, *Implementing US Department of Energy Lessons learned Programs*,

provides additional guidance for developing and implementing an effective lessons learned program. Fact Sheets from the Society for Effective Lessons Learned Sharing (SELLS) provides additional guidance on developing and implementing effective lessons learned programs.

The Standard specifies the establishment of processes and procedures to define the implementation and administration of lessons learned programs. Numerous program and process elements are enumerated and additional expectations and guidance for each of these program elements are provided. These program elements include:

1. Roles and responsibilities
2. Staff qualification and training
3. Process for researching potential lessons learned sources
4. Criteria and thresholds for lessons learned generation
5. Timeliness requirements for generation and incorporation
6. Validation and approval processes
7. Dissemination methods
8. Use of lessons learned information
9. Documentation requirements
10. Feedback systems
11. Tracking of lessons learned actions
12. Performance indicators and trend analysis
13. Program performance assessment

The Standard also states that line management is expected to demonstrate commitment to, actively promote, and ensure implementation of effective lessons learned programs. Management is expected to establish expectations, provide resources, and monitor performance for lessons learned programs.

What's working? What's not working?

The OA evaluations have consistently determined that the first seven program elements listed above are generally well established in formal programs and procedures, although more attention is needed in some of those areas. Lessons-learned programs and performance were determined to be weakest at the backend of the process, the last six of the program elements cited above.

Roles and responsibilities. All sites evaluated have developed written policies and procedures that describe the lessons learned program, and identify roles and responsibilities for coordinators and lessons learned generators.

Staff qualification and training. This element is usually addressed in position descriptions and individual training plans for designated coordinators, but training for users and line managers with lessons learned responsibilities is not as well defined.

Process for researching potential lessons learned sources. This element is usually outlined in generalities in written procedures, but clear expectations for what is to be screened (minimal population) and how screenings and results are to be documented are not typically specified.

Criteria and thresholds for lessons learned generation. The need to identify lessons learned from local work activities and events is specified in lessons learned, event, and accident reporting procedures. General threshold criteria for internally generated lessons learned are defined in lessons learned procedures. The generation of positive and negative lessons learned from work activities could be improved at many sites by incorporating specific expectations and references to the lessons learned program and these threshold criteria in work control procedures.

Timeliness requirements for generation and incorporation. Timeliness requirements are not often included in lessons learned programs. In general, we have not observed this to be a major weakness. Sites were either conscientious about generating, distributing, and applying internal lessons learned or they were not. Timeliness was not usually the issue.

Validation and approval processes. The process for developing, reviewing, and approving lessons learned are usually adequately defined in lessons learned procedures.

Dissemination methods. The vehicle(s) to be used to disseminate lessons learned are usually defined in procedures. Most sites employ web-based databases with electronic mail notifications, and often communicate lessons learned through safety committees and meetings, company newsletters, and/or bulletin board postings. Although improving, many sites still have not developed user friendly, searchable databases or provide easy access to historical lessons learned. Many sites have not done a good job of sharing internally generated lessons learned with other site facilities and organizations or with the rest of the DOE complex, except when driven by the ORPS.

Use of lessons learned information. The expectations for the application of lessons learned are addressed in a general way in lessons learned procedures and often in work planning and training procedures. However, procedures usually lack specifics as to how and when users are to access lessons learned, any methods to document or otherwise ensure that lessons learned are being applied. Further, externally generated lessons learned are often disseminated to a broad group (often sitewide) of potential users without a discussion of how they might apply locally or with specific recommended actions tailored to local organizations, the workers potentially affected, or to specific work activities. Typically, externally generated lessons learned are disseminated with the recommended actions citing the originator's site-specific personnel, organizations, and procedures.

Documentation requirements. The most pervasive program weakness observed during our evaluations is the lack of rigorous documentation of what lessons learned are screened, what lessons learned apply, what corrective or preventive actions are needed, what actions are taken, and what lessons learned are incorporated into work instructions

and training plans. Lessons learned procedures typically do not require documentation of these activities. Electronic mail is often used to document various activities, but typically is not catalogued or organized to provide adequate records of performance.

"Documentation" and "formality" are too often considered an unnecessary burden, tasks that take too much time, luxuries that cost too much and don't contribute to improvement but take resources from solving problems. While there may be some element of truth in all these negative views, process formality and documentation are essential to support a successful lesson learned programs. Requiring that people document what they do, sign their name in effect, provides motivation to do the work, and to do the work as expected. Documentation is essential in providing an auditable record that provides line managers and program coordinators a sound basis of objective evidence for determining (ensuring and demonstrating) that the program is being implemented as intended by management and required by procedures. Formality and documentation requirements and processes can be crafted to minimize the impact on users and be integrated into existing work instructions and program databases.

Feedback systems. Feedback on implementation successes or opportunities for improvement in lessons learned publications or processes are not typically formalized in program procedures. Feedback is informal and rarely communicated to promote lessons learned utilization or process improvement.

Tracking of lessons learned actions. Program procedures do not typically specify a process for tracking preventive and corrective actions, either through a separate lessons learned process or by reference to established issues management systems. Typically, only actions related to the rare external lessons learned where actions and formal responses are specified are formally documented. While examples where lessons learned initiated actions have been taken are usually available or can be reconstructed, documentation that reflects consistent application of preventive and corrective actions rarely exists.

Performance indicators and trend analysis. Formal analysis of lessons learned performance data has not been observed in OA evaluations except for very limited trending such as the number of lessons learned distributed or internally generated. The Lessons Learned Handbook provides some guidance on developing performance measures. Identification and development of meaningful performance indicators for lessons learned is not an easy task, especially in identifying or isolating performance data that is not influenced by other processes or conditions.

Program performance assessment. Self-assessment of lessons learned programs has been another common area of weakness identified in OA evaluations. Although Appendix C of the DOE Standard provides assessment guidance including evaluation and performance ratings criteria, conducting routine performance assessment has not been the standard practice at the sites we have evaluated. Most of the few self-assessments observed have not been sufficiently rigorous and/or performance deficiencies have not been input to issues management systems or effectively addressed.

Management Commitment Expectation

Demonstrated management commitment, as described in the DOE Standard, forms the foundation of an effective lessons learned program. To be fully effective, this program needs the support and involvement of many people in the organization—subject matter experts, craftsmen, trainers, planners, managers and supervisors at all levels, as well as the dedicated lessons learned coordinators and staff. Getting full cooperation and participation by this many organizations and players requires continuing line management demonstration of commitment to the program. Management can demonstrate their belief in lessons learned and communicate high expectations by providing the necessary resources; establishing a clear, firm policy; and showing interest in process decisions; and involvement in monitoring of performance. Although line management almost always acknowledges that the identification and application of lessons learned are important elements of integrated safety management, the level of commitment demonstrated often doesn't extend much beyond general policy statements. Most often lacking is the provision of sufficient staff and infrastructure, monitoring of performance, and holding people accountable for effectively implementing the program.

Opportunities for Improvement.

Lessons learned programs can be tailored to suit individual site conditions and organizations while meeting DOE management expectations. However, there are fundamental management system elements that can provide a solid foundation for your programs. These management system elements can clearly communicate what is to be done and provide a high level of assurance that the program is being implemented as intended and is effective in accomplishing work activities in a safer and more efficient manner and thereby helping to prevent accidents and operational events.

- *Strengthen the formality of processes and the rigor of implementation.* The thread that runs through many of the weaknesses observed by OA evaluations is a lack of formality and rigor that can provide line management with assurance that the expectations outlined in the DOE Standard and Handbook are being met. DOE Standard 7501-99 repeatedly employs the words "ensure" in delineating line management roles and responsibilities and "demonstrating" in detailing the expectations for management commitment to lessons learned. One good way to support ensuring and demonstrating that something is done is to fully document what you do, when you do it. The results of key program activities need to be documented to provide incentive for performers (procedural requirements and the power of a signature), evidence of implementation, and support for trending and performance measures.
- *Conduct self-assessment and performance monitoring of the lessons learned program on a planned, continuing basis.* Periodic formal implementation reviews for the newly strengthened processes will encourage compliance, identify process weaknesses, and drive continuous improvement.

- *Line managers should clearly communicate expectations for effective lessons learned and actively demonstrate their commitment by monitoring performance and holding people accountable.* Direct and routine involvement in the lessons learned processes by management will be reflected in improved and more consistent performance and in a more effective program.

Summary:

The independent evaluations of lessons learned programs by OA-50 and its predecessor have generally identified consistent performance. Overall, most sites are doing a good job in many areas, but under-performing in others. No site evaluated has yet demonstrated a noteworthy overall program that would stand as an example to all. All organizations had designated and dedicated program staff, typically institutional and facility level coordinators. All organizations defined their lessons learned program in site/company policies and delineated process requirements in written procedures. All organizations screened lessons learned and disseminated lessons learned to potential users. Most identified and developed internal lessons learned and shared them with other facilities and shared some with the DOE complex. However, evaluating performance in a definitive way has been complicated by the lack of documentation of the reviews that were done, the applicability decisions, the evaluation for needed actions, and the actions taken. More importantly, the lack of rigor in documenting program activities and the lack of adequate self-assessment and performance indicators have precluded line management from being able to ensure and demonstrate that lessons learned programs are fully effective. Finally, line management needs to better demonstrate their commitment to effective lessons learned by providing expectations, resources, encouragement, monitoring, and accountability.